



**Review Article**

**ANCIENT METHODS OF RESEARCH IN AYURVEDA**

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**ABSTRACT**

Ayurveda is the *Upaveda of Atharvaveda*, the ancient literature which gave us the knowledge of healthier life. The absolute aim of Ayurveda is to maintain the health of a healthier person and diagnose and treat the diseased person. Ayurveda has the ability to treat many chronic diseases that are untreatable in modern medicine, it has got some very preventive and curative tools to treat the diseases, but unfortunately, due to the lack of scientific validation in various concepts, this precious gift from our ancestors is trailing. In a nutshell, Ayurveda gives human a healthy life with proven methods of medical treatment. The ancient methods of treatment are very effective and relevant in present time also. Hence, evidence-based research is highly needed for global recognition and acceptance of Ayurveda, which needs further advancements in the research methodology.

**KEYWORDS:** Ayurvedic Research methodology.

**INTRODUCTION**

Ayurveda is the oldest medical system, which comprises a number of medical concepts and hypothesis. It is a science of life with a holistic approach to health and personalized medicine. It is known to be a complete medical system that comprised physical, psychological, philosophical, ethical, and spiritual health.

We are five thousand years away from the time when Ayurveda was practiced uniquely. The principle of the science then and now is the same; these are to be review in the context of modern lifestyle and the ever-progressive scientific research. The commencement of any Ayurvedic research primarily requires a complete understanding of all the basic principles laid down by the ancient Ayurvedic experts. The major problem faced by an Ayurvedic research worker is the unavailability of a standard protocol for basic research. With the collection of all the scattered references in Ayurvedic classics, we will get the idea of ancient Ayurvedic experts about their mode of research, this will help us in right direction.<sup>[1]</sup>

**Definition**

The research word came from French word '*Recherche*' which means to go about seeking. The earliest recorded use of the term was in 1577.<sup>[2]</sup> The word defines as-

- **Re** = Often
- **Search** = To find

In another context to the word also defines as<sup>[3]</sup>

- R - Rethinking
- E - Experimental method
- S - Survey
- E - Evaluation
- A - Age/Attitude/Attitude/
- R - Recognition
- C - Current affairs
- H - Head/Heart/Health/Hand

**Research<sup>[4]</sup>**

1. Defined as a Scientific and Systematic search of information on specific topic.
2. Establishing the old facts with the present knowledge.
3. Searching for the existing phenomenon and putting it into scientific and logical (correct and valid reasoning) manner.
4. Verification of old facts and finding out new facts (Invention-is inventing and Revalidation- Giving evidence).

In short, research defined as to investigate, to find, to examine, to discover new facts and verify old ones by scientific approach of a subject.

In Ayurveda, *Acharya Priyavrath Sharma* defined research as, "The study of cause and effect relationship between *Dravya-Guna-Karma* after several observations and through verifiable examination, arrival at final conclusion is called as

*Anusandhana*.”<sup>[5]</sup> The objective of *Anusandhana* is to remove the complicity in subject and find the truth.

In *Charak Samhita* the qualities of researcher are *Vidhya, Vitarka, Vigyan, Smirti, Tatparta, Kriya* which denotes the knowledge, reasoning, scientific method, memory, preparedness, and practical approach for any research process.<sup>[6]</sup>

#### Synonyms of *Anusandhana*<sup>[7]</sup>

1.	<i>Anusandhana</i>	<i>Anu</i> = to follow, <i>Sandhana</i> = appropriate knowledge, i.e. To follow appropriate knowledge.
2.	<i>Gaveshana</i>	To search or to achieve with the help of all sense.
3.	<i>Anveshana</i>	<i>Anu</i> = continuous, <i>Eshana</i> = desire, i.e. Desire to search.
4.	<i>Paryeshana</i>	<i>Pari</i> = from all the dimensions, <i>eshana</i> = to search i.e. To search from all dimensions.

#### Other equivalent terms used for word research<sup>[8]</sup>

1.	Investigation	The work of inquiring into something thoroughly and systematically
2.	Invention	The act of inventing
3.	Enquiry	A search for knowledge
4.	Exploration	A careful systematic search
5.	Verification	Additional proof that something that was believed (some fact, hypothesis or theory) is correct
6.	Discovery	The act of discovering something
7.	Quest	The act of searching for something new

#### DISCUSSION

In ancient time, there were the classical techniques of research and investigation in Ayurvedic science, which includes:

1. *Paryeshana* (Observations) and *Pariksha* (Experiments)
2. *Chaturvidha Pramana* (Means of investigations)
  - a) *Pratyaksha* (Perception)
  - b) *Anumana* (Inference)
  - c) *Aptopadesha* (Authoritative testimony)
  - d) *Yukti* (Reasoning or Experiment)
3. *Prashna* and *Sambhasha*
4. Some other methods for the validity of Observations and Experiments are - *Avastha*
5. *Panchaavayava*
6. *Samkhya* (Figures)
7. Research tools - *Tantrayukti, Tantra*.

#### 8. *Pratisanskar*

#### Observation and Experiment (*Paryeshana* and *Pariksha*)<sup>[9]</sup>

The term observation denotes the ability to notice things carefully. It is the active acquisition of information from a primary source. In the field of *Anusandhana*, the term *Paryeshana* states- Study should be done by observing/analyzing the subject from all dimensions. In Ayurveda, at some points like comparison of nature's elements with human body and elements for their similarity, needs and intensive study of literature as well as nature, which is performed in two ways- Microscopic study and Macroscopic study. To understand the basics of body elements, *Dosha, Dhatu, Mala* etc microscopic study plays an important role.

Ayurvedic *Siddhantas* also plays an important role in these studies as they provide a clear and deep knowledge about human health, body elements, nature, science etc. Starting from basics, the basic root (*Mula*) of body is *Tridosha* that is *Vata, Pitta, Kapha*. These *Tridosha*, provides nourishment to body in their natural state where as in vitiated state they are the cause of diseases. The study of *Tridosha* theory and their management in various conditions, observational study plays an important role.

The Observation study of Ayurvedic *Siddhantas* is very helpful in gaining knowledge of hidden meanings of the quotations (*Shlokas*) stated by *Acharyas*.

**Study of *Prati Purush Siddhanta***<sup>[10]</sup> shows a great approach towards research as it says every individual is different which creates a chance for experimenting different kinds of medicines and observe its effect on every individual.

**Study of *Loka Purush Samya Siddhanta***<sup>[11]</sup> shows that how an individual is an epitome of the universe all the material and spiritual phenomena of the Universe are present in an individual and all those *Bhava* present in the individual are also contained in Universe.

#### **Pramanas**

Ayurveda has its own principles and concepts. To acquire the knowledge of these concepts and principles *Pramanas* are essential. As Ayurveda is an independent and unique science of medicine, it has some independent *Pramanas* also. The physiological activities of various body parts and body organs, and the action of *Aushadha* and *Aaharadravya* on the body are comprehended through *Pramanas* only.

In the Indian literature, *Pramanas* lead an important role in acquiring complete and valid knowledge about evolution, dissolution, soul,

primordial nature, heaven, hell, liberation etc. *Pramanas* are the means or instruments which play an important role in acquiring proper knowledge. *Pramanas* are the base for getting the valid or real knowledge of matter, and for the standardization of the objects.<sup>[12]</sup>

With the help of these *Pramanas* the cause and symptoms of the diseases, the diagnosis of diseases and line of treatment can be understood which is very beneficial in research methodology.<sup>[13]</sup>

The examination and correct knowledge of the disease, patient, substance, quality and action etc. is to be confirmed on the base of *Pramanas*.

According to the *Nyaya Deepika*- "The valid knowledge is called *Pramana*."

In Ayurveda, *Acharya Charak* described the three types of Examinations (*Pramanas*) for acquiring the significant knowledge of the diseases.<sup>[14]</sup> Whereas, while proving the existence (*Sat padarth*) or non-existence (*Asat padarth*) *Acharya Charak* described the four types of examinations (*Pramanas*).<sup>[15]</sup>

#### **Synonyms of Pramana or Pariksha:<sup>[16]</sup>**

*Gangadhar*, the famous commentator of *Charak Samhita* stated the following synonyms for *Pramanas* are:

1. *Upalabधि* (Attainment)
2. *Sadhan* (Means/Source)
3. *Gyan* (Knowledge)
4. *Pariksha* (Investigation)
5. *Pramana* (Examinations)

#### **Importance of Pramana**

The main purpose of Ayurveda is to maintain the normalcy of the *Dosha* in healthy persons and to treat the patients ailing with the diseases. For the fulfillment of this aim, valid and proper knowledge is essential, which arises through the means called as *Pramanas*.

#### **a) Pratyaksha Pramana (Direct Perception)**

Though Ayurveda accepts various types of methods of the knowledge, the superiority of *Pratyaksha* remains unchallenged.

*Pratyaksha Pramana* plays a prominent role among all other *Pramanas*.

The term *Pratyaksha* is derived from two words - '*Prati+ Aksha*' which means in front of the eyes. In the context of *Aksha*, it should be understood that, the knowledge occurs not only through Eyes/*Chakshurendriya* but from the all five *Gyanendriya*.

While describing the characteristic feature of *Pratyaksha* (perception) *Acharya Charak* stated that, Perception of the *Bhavas* like *Sukh* (happiness), *Dukh* (misery), *Ichha* (desire), *Dweshha* (hatred) and the knowledge of the objects get through the *Indriyas* (sense organs) which are *Shabda* (sound), *Sparsha* (touch), *Roop* (colour), *Rasa* (taste), *Gandha* (smell) is called as *Pratyaksha*.<sup>[17]</sup>

*Acharya* defined *Pratyaksha* as, it is the instantaneous knowledge manifested by the conjugation of the soul (*Atma*), the sense organs (*Indriyas*), the mind (*Mana*) and the *Indriyarthas*.<sup>[18]</sup>

By observing the above statement, it is understood that forgetting knowledge through Perception; Conjugation of *Atma* (soul) and *Mana* (Mind) is essential.

#### **Atma**

According to *Tarka Sangrah*, *Atma* (the soul) is the seat of knowledge. Whereas, the statement of *Acharya Charak* is more precise regarding *Atma*- The Empirical soul (*Atma*) is endowed with the power of perception when conjugates with *Gyanendriya*.<sup>[19]</sup>

#### **Indriyas and Indriyarthas**

*Indriyas* are very important organs in human body, they are mostly related to soul (*Atma*) and helps the soul to get the knowledge of the objects.<sup>[20]</sup> According to *Acharya Charaka*, *Indriyas* are the basic components or instruments in differentiating the living and non-living matters.<sup>[21]</sup> Whereas, in *Indriyasthanam* *Acharya Charak* stated that the sign and symptoms of life are called *Indriyas*.

According to *Acharya Sushruta*, *Indriyas* are the specific factors or organs situated in the body which acts as the means for acquiring the knowledge of various objects and performing various activities of body.<sup>[22]</sup> Generally, there are eleven *Indriyas*- Five *Gyanendriyas*, five *Karmendriyas*, one *Ubhayendriya* (*Mana*).

*Acharya Sushruta* accepted the development of these sense organs from five *Mahabhutas* (*Akash*, *Vayu*, *Agni*, *Jala*, *Prithvi*).

*Acharya Charak* gave the concept of *Pancha Panchak*<sup>[23]</sup> in which each *Indriya* has relation with its corresponding organs (*Adhishthanas*), objects (*Indriyarthas*), elements (*Indriya dravyas*), and perceptions (*Indriya buddhi*), which totally contains twenty-five objects. All *Pancha Panchak* are related to *Pratyaksha Pramana*. Hence, they lead an important role in it. As shown in the table below.<sup>[24]</sup>

<b>Panchendriya (Five Sense Faculties)</b>	<b>Panchendriya Dravya (Five Sense Elements)</b>	<b>Panchendriya Adhishtana (Five Sense Organs)</b>	<b>Panchendriya Artha (Five Sense Objects)</b>	<b>Panchendriya Buddhi (Five Sense Perceptions)</b>	<b>Use of Pratyaksha Pramana as clinical methodology</b>
<i>Srotrendriya</i>	<i>Akash</i>	<i>Karna</i>	<i>Shabda</i>	<i>Srotraja Buddhi</i>	Gurgling sound in the intestines, cracking sound in the joints, hoarse voice of patient, sound of cough, sneeze, hiccups, sounds of lungs, heart and other organs filled with froth/blood.
<i>Sparshanendriya</i>	<i>Vayu</i>	<i>Twak</i>	<i>Sparsha</i>	<i>Sparshna Buddhi</i>	The normal and abnormal touch of the patient can be examined by hand. By <i>Sparshna</i> , examination of body temperature of a patient can be done. Oedema/pitting oedema, smooth or rough skin can be examined.
<i>Chakshurendriya</i>	<i>Agni</i>	<i>Akshini</i>	<i>Roopa</i>	<i>Chakshur Buddhi</i>	The knowledge of natural colours like white, black etc. and unnatural colours like blue, grey etc. Height, weight, age of patient; strength and development of body; change in colour of wound, inflammation area etc. can be examined.
<i>Rasanendriya</i>	<i>Jala</i>	<i>Jihwa</i>	<i>Rasa</i>	<i>Rasana Buddhi</i>	This can be known by interrogating the patient or by <i>Anumana Pramana</i> . Tastelessness of mouth in <i>Jwara</i> . Sweetness of <i>mutra</i> (urine) in <i>Prameha</i> as ants are attracted towards it. Purity of blood if crows and dogs eat it.
<i>Ghranendriya</i>	<i>Prithvi</i>	<i>Nasa</i>	<i>Gandha</i>	<i>Ghranaja Buddhi</i>	Normal and abnormal smell of patient's body. <i>Arishta Lakshana</i> can also be examined. Various smells of <i>Vrana srava</i> in various stages. Urinary smell of ( <i>Lohagandha</i> ) in septicaemia. <i>Putigandha</i> while taking

					out Puyagandha (Foul smell) Visagragandha produces in various diseases.
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**Mana**

Human being has a significant place among the *Sendriya dravyas* of the universe. Though *Mana* (mind) is existed in all the sentient beings, it has more important role and utility in human beings. If the mind in healthy and stable an individual will be able to perform his duties normally, but if the mind (*Mana*) is affected, all the activities of all the organs will be obstructed.

The word *Mana* or *Manas* is derived from the *Dhatu-Man gynae*, which expresses knowledge. So here, the Mind (*Mana*) plays an important role in perceiving the knowledge but not independently. When it associates with *Atma* (soul) and *Indriyas* (sense organs) then only it perceives the knowledge.<sup>[25]</sup>

In absence of one of the above two, perception will not happen.

*Acharya Charak* describes the characteristics of *Mana* as the occurrence and non-occurrence of cognition are the character of *Mana*. If the Mind (*Mana*) contacts with the Soul (*Atma*), the sense organs (*Indriyas*) and their objects (*Indriyarthas*) then only, cognition will occur otherwise in the absence of the contact cognition does not occur.<sup>[26]</sup>

*Acharya* says that the mind (*Mana*) motivates the sense organs (*Indriyas*) to perceive the knowledge of their respective objects.<sup>[27]</sup>

*Mana* has the enormous power of control over the body, that's why it has got a specific place in treatment. *Mana* has been accepted as a seat of diseases like body.

As already discussed, for ideal health the equilibrium stages of *Dosha*, *Dhatu*, *Mala*, *Kriya*, and *Agni* along with the happiness of soul, senses and mind is essential.<sup>[28]</sup>

*Mana* is an integral part of life, mind and body cannot be separated. The factor affecting mind will affect the body too. For example, consumption of spicy foods vitiates '*Pitta dosha*', which is a physical factor. Similarly, Anger which is a mental factor, equally responsible for aggravation of *Pitta dosha*.<sup>[29]</sup>

On the other hand, the material (*Dravya*) containing sweet taste increases '*Shleshma dosha*' in the body, and also increases sleepiness and lethargy etc. which are known to be mental factors.

So as far as pathogenic factors of mind are concerned, they can be reconciled only by taking recourse to spiritual and scriptural knowledge, patience, memory and meditation.<sup>[30]</sup> So, the proper utilization of mental faculty is beneficial to the maintenance of normal health.<sup>[31]</sup>

Thus, it is established fact that the mind (*Mana*) has got very important role in the medical science and an efficient physician requires a good knowledge of Psychology.

**Anumana Pramana (inference)**

All the systems of Indian philosophy hold *Anumana* as a distinct means of knowledge. The term '*Anumana*' consists of two words *Anu* = after + *maana* = knowledge/cognition. Thus, *Anumana* is the knowledge which comes after perception.<sup>[32]</sup>

According to *Tarka Sangrah*, *Anumana* (Inference) is the act of knowing something unknown from the known data.<sup>[33]</sup> According to *Acharya Charak* the inference is based on argument accompanied by reasoning.<sup>[34]</sup>

*Acharya Charak* gave another statement for *Anumana Pramana* which clarifies its utility in clinical methodology. According to *Acharya*, the Inference (*Anumana*) is antecedent by perception (*Pratyaksha*). It gives the knowledge of past, present and future<sup>[35]</sup> as shown in table below:<sup>[36,37]</sup>

<b>Past (Seshavadanumana)</b>	This says cause always exists before any effect, as by saying the pregnancy, the act of sexual intercourse performed in the previous period is inferred. This inference helps us to understand that if a patient comes to us with a complaint of particular disease it is understood that the <i>Nidana sevana</i> in previous period has occurred.
<b>Present (Samanyata drishtanumana)</b>	The inference based on the mark of sign is described in this method. As the inference of fire by seeing smoke can be understood.
<b>Future (Purvadanuman)</b>	This defines where reason is estimated from the work done. This is also called as <i>Karanat karyanumana</i> e.g. by seeing the seed the forthcoming fruit is inferred. The forthcoming rain is inferred by seeing the clouds.

As it is stated that the factors in the body which are perceived through *Anumana Pramana* in more in number than that of *Pratyaksha Pramana*.

Despite of such an important method of clinical examination i.e. perception; sometimes we have to take the help of logical inferences.

*Anumana Pramana* helps to understand the relation to physiology or pathology of body functions. For an instance, in a patient of arthritis to access the overall improvement after treatment, one has to interrogate them about while walking they need a support or not, is there any painful occurs while walking etc. we can predict through *Anumana Pramana* that anti-arthritic drug is acting well in patient. According *Acharya Charak* there are lots of conditions of body (Physiological and Pathological) in which inference exam is important.<sup>[38]</sup>

#### ***Aptopadesha Pramana (Authoritative Testimony)***

Though all other *Darshanas* gave first preference to *Pratyaksha Pramana*, Ayurveda has given first place to *Aptopadesha Pramana*.<sup>[39]</sup>

Ayurveda says *Aptopadesha* is base of all *Pramanas* as it plays an important role to acquire the existing knowledge which helps research scholars in further research works/experiments. All the previous research scholars, or authority people who had spent their valuable time for acquiring knowledge; compiled and wrote down their experiences and research works texts.<sup>[40]</sup> These texts help a research scholar to examine the facts and parameters, to be applied for verification. According to *Acharya Charaka*, the authoritative instructions trustworthy (*Apta*) are known as *Aptopadesha*. These persons are free from attachment and grief, they are impartial and dedicated to the pursuit of truth and knowledge.<sup>[41]</sup> Describing the *Apta* (authoritative persons), *Acharya Charak* emphasizes, those enlightened and refined persons who are absolutely free from the predominance of *Rajas* and *Tamas (Mansika dosha)* by virtue of the power of penance and knowledge and who are always in possession of an uninterrupted knowledge pertaining to past, present and future are known as *Aptas*, *Shista* (gentlemen) and *Vibuddha* (enlighted persons). Their words are true and beyond any doubt.<sup>[42,43]</sup> In Ayurveda, there are so many factors where the direct perception or inference is not useful, the matter can be ascertained by testimony only.

In Ayurveda, *Aptopadesha* plays a very important role in development of scientific knowledge. According to *Acharya Charaka*, one can know of a disease from the authoritative statement first and then he should confirm its various characteristics by examining the symptoms of diseases through the perception and inference.

The different aspects of examination through *Aptopadesha*.<sup>[44]</sup>

- The aggravating factors of diseases e.g.: *Snigdha dravyas* etc.
- Involvement of source of *Doshas*.
- Mode of manifestation of the diseases.
- Nature of diseases– whether its acute or chronic, serious or not.  
For e.g.: Acuteness of syncope, seriousness of diphtheria.
- Location of organs of the body and mind etc.
- Pain
- Symptoms
- Complications
- Association with specific sounds, touch, colours, tastes and smell.
- Association with aggravation, neutrality and decreasing.
- Prognosis, Names, Accompanying factors.
- Prescription and prohibitions in the treatment.

The knowledge of the above factors can be attained through *Aptopadesha* (Authoritative Testimony) has proven its supremacy in the field of medicine.

#### ***Yukti Pramana (Reasoning or Examination)***

Ayurveda, particularly *Acharya Charak* only accepted *Yukti* (Reasoning) as a *Pramana*. The word *Yukti* denotes– union, junction, combination, application, practice an expedient a plan or a scheme, reasoning, arguing, arrangement etc.<sup>[45]</sup> *Acharya Charak* has used the term in a wide reference and has described that the author which perceives thing as outcomes of combination of causative factors valid for Past, Present and future is known as *Yukti* [Reasoning]. This helps in the fulfillment of the human life that is *Dharma* (virtue), *Artha* (wealth) and *Kama* (desire).<sup>[46]</sup>

*Yukti* (Reasoning) is valuable source of knowledge and because of its utilization value in the world, it is one of the convincing methods advocated by the ancient Ayurvedic experts. It has been treated as a source of knowledge in the present context.<sup>[47]</sup> It is basically a conclusion drawn on the basis of Past, Present and Future. It is a multidimensional aspect which helps to understand the different concepts logically.<sup>[48]</sup> Importance of *Yukti Pramana* cannot be overlooked during Ayurvedic research, as per *Acharya Charak* there remain no drug which is not medicine if there is *Yukti*.<sup>[49]</sup>

In Ayurveda, application of experimental method (*Yukti Pramana*) can be done in the following areas:

1. Dose and time schedule of drug.
2. Methods of analysis.
3. Synthesis and compounding.
4. Isolation of particular extract.
5. Application of a drug or its fraction in a modified form.
6. Application of a drug with various vehicles (*Anupana*). '*Anupana* is a substance administered with the medicine to increase its potency, absorption, mode of action etc.'<sup>[50]</sup>

**For example:** *Triphala* can be given alone for reducing obesity, but *Triphala* with honey/warm water can help reducing obesity more quickly. This hypothesis, can be made on the basis of *Yukti Pramana*, and the same drug when used with *Ghrita* and honey it reduces eye complaints, which means one drug can be used in various diseases with different aspects with the help of *Yukti*. Thus, it proves while conducting drug research *Yukti Pramana* is used.<sup>[51]</sup>

#### **Prashna and Sambhasha**

In another method of investigation or examination comes the *Prashna Pariksha* [The method of Interrogation]. In Ayurveda, according to *Acharya Charak* there are three methods used in *Rogi Pariksha* they are *Darshan*, *Sparshan*, *Prashna* (Interrogation). The two *Darshan* and *Sparshan* methods are to evaluate the condition of patient and in the conditions of fever, edema etc evaluate the patient by touching.<sup>[52]</sup>

The interrogation method plays an important role besides the two mentioned above, as it gives the

#### **Panchaavayava**<sup>[56]</sup>

Co-relation of *Panchaavayava* with modern research tools:

	<b>Traditional Terminology</b>	<b>Modern tools and Technique</b>	<b>Practical aspects</b>
1.	<i>Pratigya</i>	Hypothesis or title of thesis	<i>Loha Bhasma</i> is effective in iron deficiency anemia.
2.	<i>Hetu</i>	Research method, techniques, lab tools, protocol	We will get the information about <i>Loha Bhasma</i> qualities through literatures, articles, <i>Aptopadesha</i> , <i>Pratyaksha</i> , <i>Anumana</i> , <i>Yukti</i> .
3.	<i>Udaharan</i>	Previous research work, thesis on same topic	Food products rich in Iron content will increase haemoglobin and corrects anemia.
4.	<i>Upanay</i>	The conclusion, discussion part of a research work	Similarly, <i>Loha Bhasma</i> acts in our body to fight anemia.
5.	<i>Nigaman</i>	Revalidation of the hypothesis	So, it is concluded that <i>Loha Bhasma</i> is Effective in Iron Deficiency Anemia.

precise knowledge along with proper and detailed history of a patient which helps in proper diagnosis.

The information collected by the interrogation is very helpful for interpretation and correlation of observed facts while taking history. This process is useful in any type of research like, Drug research for a particular disease, experiment of drug over group of patients, etc.

*Sambhasha* means discussion. *Acharya Charak* and many of the ancient experts have recommended this classical method for the establishment of facts, acceptance of new fact. In the Ayurvedic field of research, discussion with specialist physicians promote the pursuit and upgradation, advancement of knowledge, improves the power of speaking, gives fame, avoid repetitions about some topic and clear the doubts about philosophy and in scriptures of that particular topic, generates new concepts or ideas and increase confidence about the matter.<sup>[53]</sup>

#### **Other Methods of Observations**

Besides, the broad classification of principles for basic research knowledge in Ayurveda, *Acharyas* have also quoted many more important factors to be considered during research such as; *Dosha Avastha* and *Bheshaja Avastha* in human body.<sup>[54]</sup> The differences in variations of *Dosha*, medicinal drugs, location, time, strength, body, diet, wholesomeness, mind, constitution and age is very subtle. Such subtleties baffle the intelligence, even of the exceedingly brilliant persons who have clean understanding of the subject.<sup>[55]</sup> All these factors help to attain *Vyadhi moksha*, which is the basic requirement of Ayurvedic research.

**Samkhya**<sup>[57]</sup>

In Ayurveda the detailed description of *Doshas, Dhatus, Malas* etc. are concise in numerical form/ science which give a statistical knowledge.

These figures help in comparison of constituents according to different *Acharyas* and detailed description helps in the decision of management.

The statistics helps in comparison and drawing a definite and precise conclusion.

**Research Tools- Tantrayukti, Tantra**<sup>[58]</sup>

In Ayurvedic literary researches, various tools were used for study such as- *Tantrayukti* (techniques of exposition) which is generally defined as the technical terminology, methodology or technique which enables a person to interpret scientific treaties in a proper and intelligent manner.<sup>[59]</sup> Systemic and scientific approach to a *Shastra* for easy understanding of that particular *Shastra* is also called *Tantrayukti*. In literary research, these *Tantrayukti* are important as:<sup>[60]</sup>

1. For elaborating the exact statements given in the texts.
2. For exploring or searching hidden meanings of the textual statements, with the help of *Arthayojna Tantrayukti*.
3. To correct and rearrange irrelevant sentences in the texts, with the help of *Vakyayojna Tantrayukti*.

A researcher can reestablish a new fact in literary research with the help of various *Tantrayuktis*.

**Pratisanskar**

In Ancient time, the traditional method of gaining knowledge was through teaching and studying in *Gurukuls, Ashrams* etc which gives the concept of institutes and universities where a scholar must learn the basics of literature. Ancient Ayurvedic had this unique quality of super natural sense or intuition which helped them to acquire the knowledge of the universe, nature, medicinal plant, elements of body etc. Origin of Ayurveda as per *Charak Samhita* was first from *Agnivesha tantra* written by *Agnivesha* the student of *Punarvasu Atreya* from whom they acquire the knowledge of Ayurveda. Later on, the modification of the *Samhita* done by *Acharya Charak* and then by *Acharya Dridabala* who completed the *Charak Samhita* by adding 41 chapters in it. This shows that re-editing the old literature with the addition of new advanced knowledge and remolding of doubtful unwanted facts. Thus, one has to understand the protocol of research applied by the ancient Ayurvedic experts. The same should be applied along with modern research protocol.<sup>[61]</sup>

Research is a systematic activity which is directed towards the discovery and development of an organized knowledge. It is a stepwise study where every step has its significance. As per Ayurvedic perspective the methods of observation, examination, investigations, discussion and interrogations etc. are to prove Ayurvedic principles from a modern point of view.

All these methods give the knowledge to understand the principles and untoward phenomenon of Ayurvedic science. The *Pramanagyana* helps to understand the cause and effect relationship for proper understanding of Ayurvedic concepts. Interrogation helps to understand the current problems and to find out the solutions. To attain the *Vyadhi moksha* state detailed knowledge of *Dosha Avastha, Panchaavayava, Samkhya, Tantrayukti* are very important. All these tools help us in advancement of research methodology with the help of the ancient literature and methods.

**CONCLUSION**

In ancient times the treatments told by *Acharyas* are timely tested. Many references told in Ayurvedic *Samhitas* are evidence to modern research methodology. Ayurvedic research will fulfill our expectations only when it is one according to the guidelines quoted in the *Samhitas*. A standard protocol inclusive of all the above factors needs to be prepared to give a sturdy base for Ayurvedic research.

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